

ABSTRACT

Disclosed is a flash memory cell and method of manufacturing the same, and programming/erasing/reading method thereof. The flash memory cell
5 comprises a first tunnel oxide film formed at a given region of a semiconductor substrate, a first floating gate formed on the first tunnel oxide film, a second tunnel oxide film formed over the semiconductor substrate and along one sidewall of the first floating gate, a second floating gate isolated from the first floating gate while contacting the second tunnel oxide film, a
10 dielectric film formed on the first floating gate and the second floating gate, a control gate formed on the dielectric film, a first junction region formed in the semiconductor substrate below one side of the second tunnel oxide film, and a second junction region formed in the semiconductor substrate below one side of the first tunnel oxide film. Therefore, the present invention can implement
15 2-bit cell or 3-bit cell of a high density using the existing process technology. Further, it can reduce the manufacture cost and implement a high-integrated flash memory cell that is advantageous than a conventional flash memory cell in view of charge storage/retention as well as programming time.